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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,997	05/19/2006	Rudolf Kral	2003P13742WOUS	7620

22116 7590 06/24/2008

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EXAMINER	
JUETTNER, ANDREW MARK	

ART UNIT	PAPER NUMBER
3749	

MAIL DATE	DELIVERY MODE
06/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,997	KRAL ET AL.	
	Examiner	Art Unit	
	ANDREW M. JUETTNER	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The following is a Final Office action in response to communications received March 21, 2008. Claims 1-8 were previously canceled. Claims 9, 12-17, and 19 have been amended. Claims 21-23 have been added. Claims 9-23 are pending and addressed below.

Response to Amendment

2. Applicant's amendments have overcome the objections to claims 12-17 for lack of antecedent basis for terms used in the claims. Applicant's arguments with respect to the objection of "funnel shaped side walls" is persuasive that there is sufficient support and the objection has been withdrawn.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 9-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 9 and 19 recite in the third to last line "wherein the diameter and width of the steam generator pipes is determined . . ."; with respect to the width of the steam generator pipes it is unclear what is being recited. Is it the thickness of the tube? Or is the "width" the width of the fin between tubes as is described in the specification and recited other claims? It is unclear what "width of the steam generator pipes" is determined as recited in the claims. For the purposes of applying art the width

is being interpreted as the width of fins connected between steam generator pipes. The remainder of the claims are dependent on claim 9 and do not resolve the deficiency of claim 9.

Claims 21-22 refer to a width. However, as indicated above it is unclear what width is being recited. For the purposes of applying art the width is being interpreted as the width of fins connected between steam generator pipes. Claim 23 is dependent thereon and does not remedy the indefiniteness of the claims.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 9-20 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,226,936 to Garkawe (Garkawe).

In Reference to Claim 9

Garkawe teaches:

A steam generator (see figure 4), comprising:

a combustion chamber having funnel shaped side walls, a bottom area, and a top area (see fig. 4; top near section 42 and bottom at section 50 with funnel shaped side walls formed to tubes 46 and fins 48, chamber holds material that is hot and still combust);

a plurality of steam generator pipes (46), at least one of the pipes having a diameter at the bottom area that is different than a diameter at the top area (see fig. 4; column 5, lines 23-29: tubes 46 are swaged above hopper section 44 to a reduced diameter);

an encircling wall arranged between the bottom and top areas and above the funnel shaped side walls formed from the plurality of steam generator pipes (cylindrical section 42 is formed of tubes 46 and fins 48);

a flow medium that flows through the steam generator pipes (water cooled tubes; title, abstract);

a center axis A, positioned at the center of the encircling wall and extending parallel to the direction of flow of the flow medium (the cylindrical section 42 which can have a center axis extend vertically through its middle),

wherein the diameter and width of the steam generator pipes is determined with respect to the steam generator pipe distance from the center axis A and with respect to the height of the funnel-shaped side walls (as the walls proceed down and the diameter of the hopper section decreases that diameter of the tubes is reduced as is the width of the fins; column 5, lines 19-30).

In Reference to Claim 10

Garkawe teaches:

> The steam generator as claimed in claim 9 (see rejection of claim 9 above), wherein a majority of steam generator pipes have a diameter at the bottom area that is different than a diameter at the top area (see fig. 4, column 5, lines 23-29: all the tubes 46 have a reduced diameter in the bottom area compared to the top area).

In Reference to Claim 11

Garkawe teaches:

> The steam generator as claimed in claim 10 (see rejection of claim 10 above), wherein all of the steam generator pipes have a diameter at the bottom area that is different than a diameter at the top area (see fig. 4, column 5, lines 23-29: all the tubes 46 have a reduced diameter in the bottom area compared to the top area).

In Reference to Claim 12

Garkawe teaches:

> The steam generator as claimed in claim 11 (see rejection of claim 11 above), wherein a plurality of steam generator pipes have a smaller pipe diameter in the bottom area than in the top area (see fig. 4, column 5, lines 23-29: all the tubes 46 have a reduced diameter in the bottom area compared to the top area).

In Reference to Claim 13

Garkawe teaches:

> The steam generator as claimed in claim 12 (see rejection of claim 12 above), wherein adjacent steam generator pipes are connected via fins (fins 48), and a plurality of the fins in the top area have a different width than in the bottom area (fins 48 decrease in width from top to bottom, see fig. 4; column 5, lines 15-23).

In Reference to Claim 14

Garkawe teaches:

> The steam generator as claimed in claim 13 (see rejection of claim 13 above), wherein a plurality of fins in the bottom area have a narrower width than in the top area (fins 48 decrease in width from top to bottom, see fig. 4; column 5, lines 15-23).

In Reference to Claim 15

Garkawe teaches the steam generator as claimed in claim 14 (see rejection of claim 14 above), but does not disclose that the diameter of the plurality of steam pipes in the bottom area is reduced by 5 to 15 percent relative to the pipe diameter in the top area. However, one having ordinary skill in the art at the time of the invention to optimize the percent reduction in the diameter of the pipes in order to reach a desired hopper output dimension and result in a reduction of 5 to 15 percent depending on relative top and bottom dimensions.

In Reference to Claim 16

Garkawe teaches the steam generator as claimed in claim 15 (see rejection of claim 15 above), but does not disclose that the width of a plurality of fins in the bottom area is reduced by 30 to 70 percent relative to the fin width in the top area. Garkawe does disclose that the fin width is reduced to the point of being negated at the top of the hopper section 44 (column 5, lines 19-23). However, as shown in hopper section 44 in figure 4, the fins are used again in the section once the tubes 46 have been swaged. The comparative widths of the fins in the top and bottom sections are not disclosed in Garkawe but the range of percent reduction in the fin width recited in claim 16 would have been obvious to one having ordinary skill in the art at the time of the invention because the optimum or workable range could have been discovered through routine experimentation.

In Reference to Claim 17

Garkawe teaches:

> The steam generator as claimed in claim 16 (see rejection of claim 16 above), wherein the plurality of steam generator pipes in the bottom area are arranged substantially parallel to the direction of inclination of the funnel-shaped side walls (the tubes 46 form the funnel shaped walls and thus are parallel to the direction of inclination that the walls form; see fig. 4).

In Reference to Claim 18

Garkawe teaches:

The steam generator as claimed in claim 17 (see rejection above), wherein the steam generator is a continuous steam generator (water is continuously feed to the tubes 46, the heated contents of the chamber will continuously generate steam from the water in the tubes 46).

In Reference to Claim 20

Garkawe teaches:

The steam generator as claimed in claim 9 (see rejection of claim 9 above), wherein the combustion chamber side walls and the encircling wall form a gas tight boundary for the ducting of a hot combustion gas (the walls are formed of tubes 46 and fins 48 and form a gas tight boundary which will duct the hot gases).

In Reference to Claim 19

Garkawe teaches:

A combustion chamber that combusts a fossil fuel for the generation of steam (see fig. 4, separates fuel particulates and gases - combustion of fuel in chamber can occur), comprising:

a top area (top near section 42, see fig. 4) and a bottom area where the bottom area is sized and configured for removal of accumulated ash (hopper section 44 is reduced to end 50, see fig. 4);

a lower portion having funnel shaped side walls arranged between the top and bottom areas (see fig. 4);

a plurality of steam generator pipes, at least one of the pipes having a diameter at the bottom area that is different than a diameter at the top area (see fig. 4; tubes 46 form walls with fins 48; column 5, lines 23-29: all the tubes 46 have a reduced diameter in the bottom area compared to the top area);

an encircling wall arranged between the bottom and top areas and above the funnel shaped side walls formed from the plurality of steam generator pipes (cylindrical section 42 is formed of tubes 46 an fins 48); and

a flow medium that flows through the steam generator pipes that is heated (water flows through tubes; title, abstract); and

a center axis A, positioned at the center of the encircling wall and extending parallel to the direction of flow of the flow medium (the cylindrical section 42 which can have a center axis extend vertically through its middle),

wherein the diameter and width of the steam generator pipes is determined with respect to the steam generator pipe distance from the center axis A and with respect to the height of the funnel-shaped side walls (as the walls proceed down and the diameter of the hopper section decreases that diameter of the tubes is reduced as is the width of the fins; column 5, lines 19-30).

Allowable Subject Matter

7. Claims 21-23 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter: Garkawe does not disclose that any pipes have non-reduced diameter and non-reduced fin width. US 5,056,468 to Stevens discloses what is typical in the art for funnel shaped hopper sections in steam generators (see fig.1, section F). Stevens does disclose that the tubes have a reduced diameter from top to bottom (transition shown in fig. 3). Stevens does not disclose that the fin width is reduced in the funnel shape wall section. Prior art does not disclose that the diameter of the pipe and width is determined with respect to the center axis and the height, in combination with the characteristics recited in claims 21-23.

9. Claims 21-23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments with respect to claims 9-14 and 20, 15-18, and 19 have been considered but are moot in view of the new ground(s) of rejection.

11. Applicant's argument relating to the Garkawe patent and claims 17 and 18 are not persuasive. Applicant argued that the Garkawe patent only teaches reducing the fin width (column 5, lines 15-23) and does not teach reducing the diameter of the tubes. However, applicant fails to address the next few lines of text (column 5, lines 23-29) and figure 4 which teach that the tubes 46 are swaged, diameter reduced, in addition to

reducing the fin width in order "to accommodate the decreasing circumference and diameter of the hopper section" (column 5, lines 23-25). As is indicated in the rejection of the claims above Garkawe does teach reducing both the fin width and the diameter of the tubes.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW M. JUETTNER whose telephone number is (571)270-5053. The examiner can normally be reached on Monday through Friday 7:30am to 5pm Est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMJ

/A. M. J./
Examiner, Art Unit 3749

/Steven B. McAllister/
Supervisory Patent Examiner, Art Unit 3749